

# **Astrobiology's Impact on Science Education**

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Motivated by *A Nation at Risk* in 1983, systematic research in science education has confirmed that, despite well-intentioned efforts of interested scientists and dedicated teachers, too many students leave the US educational system with fundamental misconceptions of key scientific concepts. Success in these efforts has become more urgent in recent years as the “anti-evolution in schools” movement is gaining momentum. Concurrently, scientists working to improve education have gained significant insight into the effective teaching and learning of science. Specifically, science education research efforts have uncovered instructional strategies that help students better appreciate science while simultaneously emerging with a conceptually rich understanding of science concepts. Paramount to these advances is the recognition of the teaching and learning of science as a complex system with interconnected processes rather than a one-way transfer of knowledge from the scientific community to students. Research indicates that the greatest gains in learning and attitudes toward science result from instructional environments that engage students by taking into account the needs of learners, in particular, their pre-instructional beliefs and reasoning difficulties. With its interdisciplinary nature and ability to evoke a natural sense of wonder, astrobiology provides a truly exciting and intriguing vehicle for improving the teaching and learning of science. In particular, NAI E/PO teams collaborating with scientists and science education researchers are successfully integrating research results from both the science education and astrobiology research fields to create pedagogically sound and highly effective K-16 curriculum and courses that contribute to student understanding and the science education reform movement in the US.